

PATENT APPLN. NO. 10/532,082  
RESPONSE UNDER 37 C.F.R. §1.111

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REMARKS

Claim 1 has been amended to limit the thermoplastic polymer from which the aggregate of nanofibers of the present invention is made to the polymers recited in claim 7, i.e., polyester, polyamide, and polyolefin, and polyphenylene sulfide. The amendment to claim 1 is supported by the description in the specification of the present application on page 11, line 27, to page 12, line 1, and claim 7. Claim 7 has been canceled.

In the current Office Action, claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fong et al., *Beaded nanofibers formed during electrospinning*, Polymer 40 (1999) 4585-4592 (hereinafter: "Fong"), in view of Deitzel et al., *Controlled deposition of electrospun poly(ethylene oxide) fibers*, Polymer 42 (2001) 8163-8170 (hereinafter: "Deitzel"), and further in view of Gogins et al., US 2004-0116025 A1 (hereinafter: "Gogins"). Claim 7 is also rejected under 35 U.S.C. § 103(a) as being unpatentable over Theron et al., *Electrostatic field-assisted alignment of electrospun nanofibres*, Nanotechnology, 12 (2001), 384-390 (hereinafter: "Theron"), in view of Fong, in view of Dietzel and Gogins. These are the only rejections relevant to the claims as amended.

The above-noted 35 U.S.C. § 103(a) rejections rely on the

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combination of Fong and Gogins. The position of the Office is that the nanofibers of Fong are expected to have a small fiber fineness by number average and a small spread of single fiber fineness. Gogins is relied on as teaching the polymers as claimed.

Applicants respectfully submit that Fong and Gogins cannot be properly combined. Fong discloses a method for producing nanofibers which have a small fiber fineness by number average and a small spread of single fiber fineness by an electrospinning method as identified by the Office. However, the method of Fong can be used only for a water soluble polymer. The Office refers to Fig. 2f and Table 2 of Fong in which nanofibers having a diameter less than 100nm and having no beading are disclosed. These nanofibers are obtained by electrospinning a solution containing poly(ethylene oxide), water and NaCl. As described on page 4585, right column, lines 22-27; pages 4588-4589, "3.2 Net charge density"; Table 1, and Fig. 2, of Fong, it is necessary to add NaCl to a water solution of polymer to prevent formation of the beads. The method of Fong can be adopted only for a water soluble polymer and cannot be adopted for a water insoluble polymer such as claimed in the present invention and as disclosed in Gogins.

Furthermore, the nanofibers of the present invention, i.e. having small diameter, having small spread of single fiber

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fineness, and consisting of specified polymer, cannot be obtained by an electrospinning method.

For the above reasons, the 35 U.S.C. § 103(a) rejections, which rely on the combination of Fong and Gogins, are not correct and should be withdrawn.

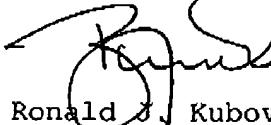
The foregoing is believed to be a complete and proper response to the Office Action dated June 17, 2010.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

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